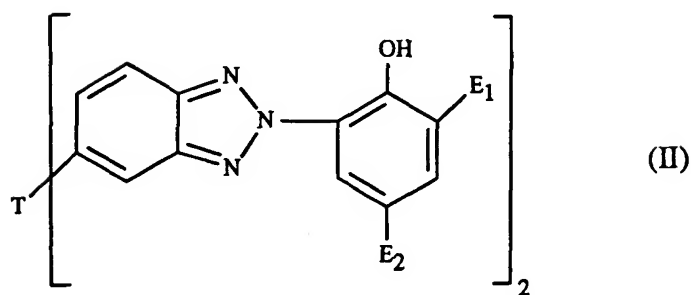
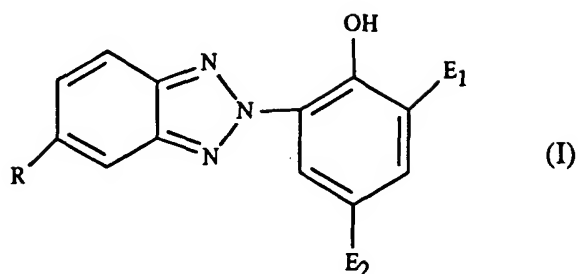


WHAT IS CLAIMED IS:

1. A compound of formula I or II



wherein

R is phenyl, naphthyl, biphenyl, 9-phenanthryl or said phenyl, naphthyl, biphenyl or 9-phenanthryl substituted by one to three alkyl of 1 to 18 carbon atoms, phenylalkyl of 7 to 15 carbon atoms, R<sub>3</sub>S-, R<sub>3</sub>SO-, R<sub>3</sub>SO<sub>2</sub>, aryl of 6 to 10 carbon atoms, perfluoroalkyl of 1 to 12 carbon atoms, halogen, nitro, cyano, carboxyl, alkoxycarbonyl of 2 to 19 carbon atoms, hydroxyl, alkoxy of 1 to 18 carbon atoms, aryloxy of 6 to 10 carbon atoms, aralkoxy of 7 to 15 carbon atoms, vinyl, acetyl, acetamido, amino, dialkylamino of 2 to 12 carbon atoms, formyl, thioalkoxy of 1 to 18 carbon atoms, hydroxymethyl, aminomethyl, halomethyl, sulfato, phosphato or where any two substituents form a benzo ring

with the aryl moiety to which they are attached,

T is a direct bond, 1,4-phenylene or said phenylene substituted by one or two alkyl of 1 to 12 carbon atoms,

R<sub>3</sub> is alkyl of 1 to 18 carbon atoms, phenylalkyl of 7 to 15 carbon atoms or aryl of 6 to 10 carbon atoms,

E<sub>1</sub> is hydrogen, straight or branched alkyl of 1 to 24 carbon atoms, phenylalkyl of 7 to 15 carbon atoms, phenyl, or said phenyl or said phenylalkyl substituted on the phenyl ring by 1 to 4 alkyl of 1 to 4 carbon atoms,

E<sub>2</sub> is straight or branched alkyl chain of 1 to 24 carbon atoms, straight or branched chain alkenyl of 2 to 18 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, phenylalkyl of 7 to 15 carbon atoms, phenyl, or said phenyl or said phenylalkyl substituted on the phenyl ring by 1 to 3 alkyl of 1 to 4 carbon atoms; or E<sub>2</sub> is alkyl of 1 to 24 carbon atoms or alkenyl of 2 to 18 carbon atoms substituted by one or more -OH, -OCOE<sub>3</sub>, -NH<sub>2</sub>, -NHCOE<sub>3</sub> or -COOE<sub>3</sub>, or mixtures thereof; or said alkyl or said alkenyl interrupted by one or more -O- which can be unsubstituted or substituted by one or more -OH groups; where E<sub>3</sub> is hydrogen or alkyl of 1 to 24 carbon atoms, and where said alkyl is interrupted by one or more -O- and which can be substituted by one or more -OH or -OR<sub>21</sub> groups where R<sub>21</sub> is alkyl of 1 to 12 carbon atoms; and

with the proviso that 5-phenyl-2-(2-hydroxy-3,5-di-tert-amylphenyl)-2H-benzotriazole is excluded; and

with the further proviso that, when E<sub>1</sub> is hydrogen, methyl or ethyl and E<sub>2</sub> is methyl or ethyl, R is not phenyl.

2. A compound of formula I according to claim 1 wherein R is phenyl, 2-naphthyl, 3-biphenyl, 4-biphenyl, 9-phenanthryl, 2-trifluoromethylphenyl, 3-trifluoromethylphenyl,

4-trifluoromethylphenyl, 3,5-ditrifluoromethylphenyl, 4-cyanophenyl, 3-methylphenyl, 3-isopropylphenyl, 3-fluorophenyl, 3-chlorophenyl, 3-bromophenyl, 3-iodophenyl, 3-methoxyphenyl, 3-ethoxyphenyl, 3-benzyloxyphenyl, 3-hydroxyphenyl, 3-hydroxymethylphenyl, 3-thiomethylphenyl, 3-bromomethylphenyl, 3-cyanophenyl, 3-vinylphenyl, 3-acetylphenyl, 3-aminophenyl, 3-acetamidophenyl, 3-formylphenyl, 3-isothiocyanophenyl, 2-ethylphenyl, 2-cyanophenyl, 2-acetylphenyl, 2-bromomethylphenyl, 2-bromophenyl, 2-vinylphenyl, 2-aminophenyl, 2-hydroxyphenyl, 2-ethoxyphenyl, 2-fluorophenyl, 2-chlorophenyl, 2-methoxyphenyl, 2-formylphenyl, 2-methylphenyl, 4-n-butylphenyl, 4-n-nonylphenyl, 4-methoxycarbonylphenyl, 4-cyanomethylphenyl, 4-aminomethylphenyl, 4-isobutylphenyl, 4-iodophenyl, 4-thioethylphenyl, 4-bromomethylphenyl, 4-benzyloxyphenyl, 4-acetylphenyl, 4-dimethylaminophenyl, 4-hydroxyphenyl, 4-isopropylphenyl, 4-tert-butylphenyl, 4-amino-phenyl, 4-n-amylphenyl, 4-ethylphenyl, 4-hydroxymethylphenyl, 4-ethoxyphenyl, 4-vinyl-phenyl, 4-formylphenyl, 4-carboxyphenyl, 4-thiomethylphenyl, 4-phenoxyphenyl, 4-methoxy-phenyl, 4-methylphenyl, 4-chlorophenyl, 4-fluorophenyl, 4-bromophenyl, 2,6-dimethylphenyl, 3,5-dichlorophenyl, 3,5-dimethylphenyl, 3,5-dibromophenyl, 3,5-difluorophenyl, 3-chloro-4-fluorophenyl, 3,4-difluorophenyl, 3-amino-4-methylphenyl, 3,4-dichlorophenyl, 3-hydroxy-4-methylphenyl, 3-amino-4-methylphenyl, 3-fluoro-4-bromophenyl or 3-fluoro-4-formyl-phenyl, and where E<sub>1</sub> and E<sub>2</sub> are independently straight or branched chain alkyl of 4 to 24 carbon atoms or phenylalkyl of 7 to 15 carbon atoms, or E<sub>1</sub> is additionally phenyl.

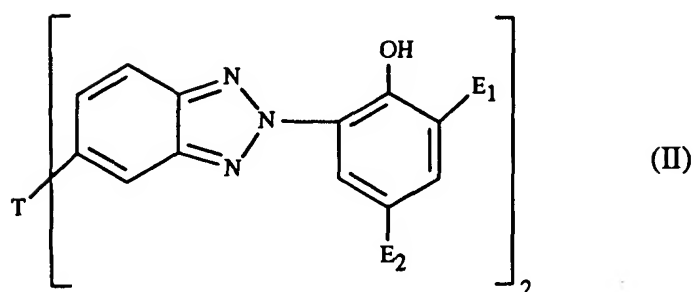
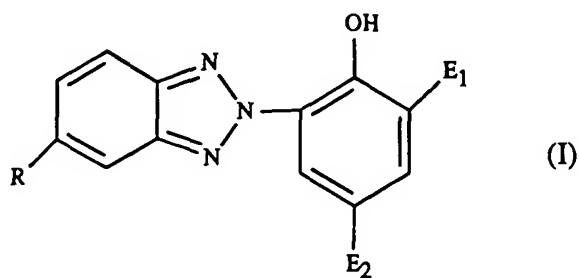
3. A compound of formula II according to claim 1 where T is a direct bond, 1,4-phenylene or 2,5-di-n-hexyl-1,4-phenylene and where E<sub>1</sub> and E<sub>2</sub> are independently a straight or branched chain alkyl of 4 to 24 carbon atoms or phenylalkyl of 7 to 15 carbon atoms.

4. A compound of formula I or II according to claim 1 where R is phenyl, 2-trifluoromethylphenyl, 3-trifluoromethylphenyl, 4-trifluoromethylphenyl, 3,5-di-trifluoromethylphenyl, 4-cyanophenyl, 4-methoxyphenyl or 1,1'-biphenyl-4-ylphenyl, T is 1,4-phenylene, E<sub>1</sub> is phenyl or α-cumyl, and E<sub>2</sub> is tert-butyl or tert-octyl.

5. A compound of formula I according to claim 4 where R is phenyl or 4-trifluoro-

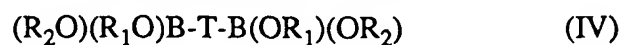
methylphenyl;  $E_1$  is  $\alpha$ -cumyl; and  $E_2$  is tert-octyl.

6. A process for the preparation of a compound of formula I or II



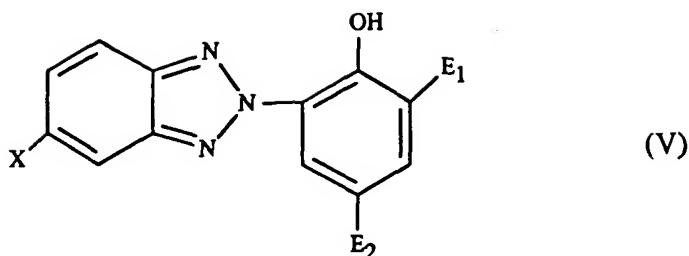
where R, T,  $E_1$  and  $E_2$  are as defined above,

by the reaction of an arylboronic acid or ester of formula III or IV



where  $R_1$  and  $R_2$  are independently hydrogen, alkyl of 1 to 12 carbon atoms, or  $R_1$  and  $R_2$  together are alkylene of 2 to 4 carbon atoms;

with a 5-substituted benzotriazole of formula V



where X is chloro, bromo or iodo, or tosylate,

in the presence of an effective amount of a palladium (II) catalyst at a temperature between 10 to 100°C.

7. A process according to claim 6 wherein X is bromo.

8. A process according to claim 6 wherein the reaction is carried out at a temperature between 50 to 95°C.

9. A process according to claim 6 wherein the amount of palladium (II) catalyst is 0.01 to 10 mol percent.

10. A process according to claim 6 wherein additionally a ligand is present.

11. A process according to claim 10 wherein the ligand is triphenylphosphine, 2-(di-tert-butylphosphino)biphenyl, 1,1'-bis[2,4,8,10-tetrakis(tert-butyl)-dibenzo-[d,f][1,3,2]dioxaphosphin-6-yl]ferrocene, tris(2,4-di-tert-butylphenyl) phosphite or 2,2',2''-nitrilo[triethyl-tris(3,3',5,5'-tetra-tert-butyl-1,1'biphenyl-2,2'-diyl)phosphite].

12. A process according to claim 11 wherein the ligand is triphenylphosphine.

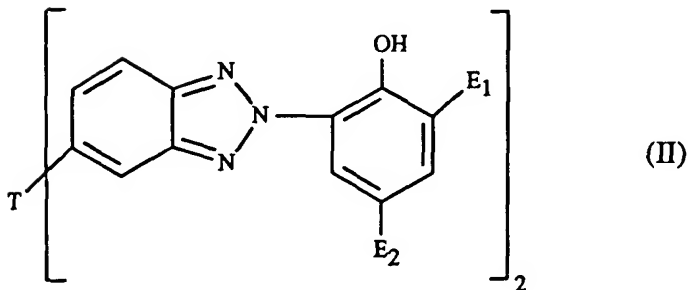
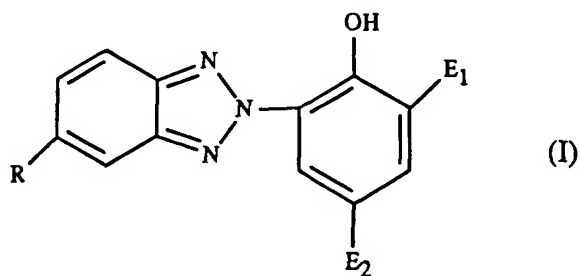
13. A process according to claim 6 wherein the process is an anhydrous process with dioxane as solvent and potassium fluoride as a base.

14. A process according to claim 6 wherein the process is carried out using n-propanol or isopropanol as solvent with a small amount of water present and aqueous sodium carbonate as base.

15. A composition stabilized against thermal, oxidative or light-induced degradation which comprises,

(a) an organic material subject to thermal, oxidative or light-induced degradation,  
and

(b) an effective stabilizing amount of a compound of formula I or II



wherein

R is phenyl, naphthyl, biphenyl, 9-phenanthryl or said phenyl, naphthyl, biphenyl or 9-phenanthryl substituted by one to three alkyl of 1 to 18 carbon atoms, phenylalkyl of 7 to 15 carbon atoms,  $R_3S-$ ,  $R_3SO-$ ,  $R_3SO_2$ , aryl of 6 to 10 carbon atoms, perfluoroalkyl of 1 to 12 carbon atoms, halogen, nitro, cyano, carboxyl, alkoxycarbonyl of 2 to 19 carbon atoms, hydroxyl, alkoxy of 1 to 18 carbon atoms, aryloxy of 6 to 10 carbon atoms, aralkoxy of 7 to 15 carbon atoms, vinyl, acetyl, acetamido, amino, dialkylamino of 2 to 12 carbon atoms, formyl, thioalkoxy of 1 to 18 carbon atoms, hydroxymethyl, aminomethyl, halomethyl, sulfato, phosphato or where any two substituents form a benzo ring with the aryl moiety to which they are attached,

T is a direct bond, 1,4-phenylene or said phenylene substituted by one or two alkyl of 1 to 12 carbon atoms,

$R_3$  is alkyl of 1 to 18 carbon atoms, phenylalkyl of 7 to 15 carbon atoms or aryl of 6 to 10 carbon atoms,

$E_1$  is hydrogen, straight or branched alkyl of 1 to 24 carbon atoms, phenylalkyl of 7 to 15 carbon atoms, phenyl, or said phenyl or said phenylalkyl substituted on the phenyl ring by 1 to 4 alkyl of 1 to 4 carbon atoms,

$E_2$  is straight or branched alkyl chain of 1 to 24 carbon atoms, straight or branched chain alkenyl of 2 to 18 carbon atoms, cycloalkyl of 5 to 12 carbon atoms, phenylalkyl of 7 to 15 carbon atoms, phenyl, or said phenyl or said phenylalkyl substituted on the phenyl ring by 1 to 3 alkyl of 1 to 4 carbon atoms; or  $E_2$  is alkyl of 1 to 24 carbon atoms or alkenyl of 2 to 18 carbon atoms substituted by one or more  $-OH$ ,  $-OCOE_3$ ,  $-NH_2$ ,  $-NHCOE_3$  or  $-COOE_3$ , or mixtures thereof; or said alkyl or said alkenyl interrupted by one or more  $-O-$  which can be unsubstituted or substituted by one or more  $-OH$  groups; where  $E_3$  is hydrogen or alkyl of 1 to 24 carbon atoms, and where said alkyl is interrupted by one or more  $-O-$  and which can be substituted by one or more  $-OH$  or  $-OR_{21}$  groups where  $R_{21}$  is alkyl of 1 to 12 carbon atoms.

16. A composition according to claim 15 wherein component (a) is a thermoplastic

polyolefin, polyester, polyester urethane, polyether urethane or a water-borne coating.

17. A composition according to claim 15 wherein component (a) is selected from the group consisting of polypropylene, thermoplastic polyolefin, low density polyethylene, medium density polyethylene, high density polyethylene, linear low density polyethylene, poly(butene-1), ethylene/vinyl acetate copolymer, ethylene/propylene copolymer, copolymers of ethylene or propylene with other alpha-olefins, copolymers of acrylonitrile-butadiene-styrene (ABS), copolymers of acrylonitrile and styrene that are impact modified with ethylene-propylene rubber or ethylene/propylene/alpha-olefin rubber or butyl acrylate rubber, blends of ABS and polycarbonate, blends of ABS and poly(vinyl chloride) (PVC), poly(vinyl chloride), copolymers of styrene and butadiene (HIPS), copolymers of styrene and butadiene that also contain ethylene-propylene rubber or ethylene/propylene/alpha-olefin rubber or butyl acrylate rubber, thermoplastic elastomers and thermoplastic vulcanizates.

18. A composition according to claim 15 wherein component (a) is a polyester or polyether urethane or water-borne coating.

19. A composition according to claim 15 which additionally contains an effective stabilizing amount of at least one coadditive stabilizer selected from the group consisting of the phenolic antioxidants, metal stearates, metal oxides, organophosphorus compounds, furanone antioxidants, hydroxylamines, UV absorbers, non-NOR hindered amines, NOR hindered amines and mixtures thereof.

20. A composition according to claim 15 which is a stabilized stoving lacquer wherein component (a) is an acid catalyzed resin based on hot crosslinkable, acrylic, acrylic melamine, polyester, polyurethane, polyamide or alkyd resin.

21. A composition according to claim 15 which additionally contains a UV absorber selected from the group consisting of the benzotriazoles, the s-triazines, the oxanilides, the salicylates, the hydroxybenzophenones, the benzoates and the



$\alpha$ -cyanoacrylates.

22. A composition according to claim 15 which is an enamel of high solids content for industrial finishes.

23. A composition according to claim 15 which is a finishing enamel for automobiles.

24. A composition according to claim 15 wherein component (a) is a polyolefin, polycarbonate, a styrenic, ABS, a nylon (polyamide), a polyester, a polyurethane, a polyacrylate, a rubber modified styrenic, poly(vinyl chloride), poly(vinyl butyral), polyacetal (polyoxymethylene), or other blends or copolymers such as poly(ethylene/1,4-cyclohexylenedimethylene terephthalate) PETG or an ethylene/acrylic acid copolymer or salts thereof (an ionomer).

25. A composition according to claim 24 wherein the polymer is a polyester or a polyacrylate.

26. A composition according to claim 24 wherein the polyester is poly(ethylene terephthalate), poly(butylene terephthalate) or poly(ethylene naphthalenedicarboxylate), or copolymer poly(ethylene/1,4-cyclohexylenedimethylene terephthalate) PETG.

27. A composition according to claim 15 wherein component (a) is a polyolefin or polycarbonate.

28. A composition according to claim 15 wherein component (a) is a photographic composition.

29. A composition according to claim 15 wherein the organic material is a candle wax.

30. A composition according to claim 29 wherein the candle wax additionally contains an effective stabilizing amount of a hindered amine.

31. A compound which is 5-bromo-2-(2-hydroxy-3- $\alpha$ -cumyl-5-tert-octyl)phenyl)-2H-benzotriazole.